EEF/SUTTON TRUST TEACHING TOOLKIT

Three significant strategies that can amplify pupils learning by a factor of 5 to 8 months above average attainment levels

1. COLLABORATIVE LEARNING +5 months

What is it?

Collaborative or cooperative learning can be defined as learning tasks or activities where students work together in a group small enough for everyone to participate on a collective task that has been clearly assigned. This can be either a joint task where group members do different aspects of the task but contribute to a common overall outcome, or a shared task where group members work together throughout the activity. Some collaborative learning approaches also get mixed ability teams or groups to work in competition with each other, in order to drive more effective collaboration. There is a very wide a range of approaches to collaborative and co-operative learning involving different kinds of organisation and tasks, but this summary does not include *Peer Learning* which is reviewed separately

How effective is it?

The impact of collaborative approaches on learning is consistently positive, but it does vary so it is important to get the detail right. Effective collaborative learning requires much more than just sitting pupils together and asking them to work together; structured approaches, with well-designed tasks lead to the greatest learning gains. There is some evidence that collaboration can be supported with competition between groups, but this is not always necessary, and can lead to learners focusing on the competition rather than the learning it aims to support. Approaches which promote talk and interaction between learners tend to promote the best gains.

How secure is the evidence?

Evidence about the benefits of collaborative learning has been found consistently for over 40 years and a number of systematic reviews and meta-analyses of research studies have been completed. In addition to direct evidence from research into collaborative learning approaches, there is also indirect evidence where collaboration has been shown to the effectiveness of other approaches such as mastery learning or digital technology. It appears to work well for all ages if activities are suitably structured for learners' capabilities and positive evidence has been found across the curriculum. Not all of the specific approaches to collaborative learning that are adopted by schools have been evaluated so it is important to evaluate any new initiative in this area.

What are the costs?

The direct costs involved are very low, though professional development is advisable. Estimated costs for a class of 25 pupils are about £500 or £20 per pupil per year, plus the costs of monitoring and evaluating impact of adopting the approach. Overall the costs are estimated as very low.

What do I need to know?

- Pupils will need support and practice to work together; this does not happen automatically.
- Tasks need to be designed carefully so that working together is effective and efficient, otherwise some pupils will try to work on their own.
- Competition between groups can be used to support pupils in working together more effectively within their group, though over-use of competition can focus
- learners on the competition rather than succeeding in their learning so it needs to be used cautiously.
- It is particularly important to encourage lower achieving pupils to talk and articulate their thinking in collaborative tasks as they may contribute less.
- Managing effective collaborative group work is challenging so professional development or collaborative professional inquiry is likely to be helpful to support
- effective use of these approaches.

2. FEEDBACK +6 – 8 months

What is it?

Feedback is information given to the learner and/or the teacher about the learner's performance relative to learning goals. It should aim to (and be capable of) producing improvement in students' learning. Feedback redirects or refocuses either the teacher's or the learner's actions to achieve a goal, by aligning effort and activity with an outcome. It can be about the learning activity itself, about the process of activity, about the student's management of their learning or self-regulation or (the least effective) about them as individuals. This feedback can be verbal, written, or can be given through tests or by means of ICT. It can come from a teacher or someone taking a teaching role (including pupils acting as teachers) or from peers.

How effective is it?

Feedback studies tend to show very high effects on learning. However, it also has a very high range of effects and some studies show that feedback can have negative effects and make things worse. It is therefore important to understand the potential benefits and the possible limitations of this as an approach. The research evidence about feedback was part of the rationale for Assessment for Learning (AfL). One evaluation of AfL indicated an impact of half of a GCSE grade per student per subject is achievable, which would be in line with the wider evidence about feedback. Other studies reporting lower impact indicate that it is challenging to make feedback work in the classroom. In general research-based approaches which provide feedback to learners, such as Bloom's 'mastery learning', also tend to have a positive impact.

Feedback has effects on all types of learning across all age groups. Research in schools has focused particularly on English, mathematics and, to a lesser extent, science.

How secure is the evidence?

There are a substantial number of reviews and meta-analyses of the effects of feedback. Educational (rather than psychological or theoretical) studies tend to identify positive

benefits where the aim is to improve learning outcomes in reading or mathematics or in recall of information. The most recent meta-analysis of studies focusing on assessment for learning in schools indicates the gains are more modest, suggesting an improvement of about three months additional progress is achievable in schools or nearer four months when the approach is supported with professional development.

What are the costs?

The costs of providing more effective feedback are not high. However it is likely to require sustained professional development to improve practice, and this includes active inquiry and evaluation. Estimates of this (including up to 7-10 days cover) are in the region of £2,000-£3,000 per teacher per year or about £100 per pupil. Overall costs are estimated as low.

What do I need to know?

Providing effective feedback is challenging. Research suggests that it should:

be specific, accurate and clear (e.g. "It was good because you..." rather than just "correct").

- compare what a learner is doing right now with what they have done wrong before (e.g. "I can see you were focused on improving X as it is much better than last time's Y…").
- encourage and support further effort (getting a balance between support and challenge) and be given sparingly so that it is meaningful (as too much feedback can stop learners working out what they need to do for themselves).
- provide specific guidance on how to improve and not just tell students when they are wrong.
- be supported with effective professional development for teachers.
- Wider research suggests the feedback should be about complex or challenging tasks or goals as this is likely to emphasise the importance of effort and perseverance as well as be more valued by the pupils. Feedback can come from other peers as well as adults (see Peer

3. METACOGNITION AND SELF REGULATION +8 months

What is it?

Meta-cognitive and self-regulation strategies (sometimes known as 'learning to learn' strategies) are teaching approaches which make learners think about learning more explicitly. This is usually by teaching pupils specific strategies to set goals, monitor and evaluate their own learning. Self-regulation refers to managing one's own motivation towards learning as well as the more cognitive aspects of thinking and reasoning. Overall these strategies involve being aware of one's strengths and weaknesses as a learner, such as by developing self-assessment skills, and being able to set and monitor goals. They also include having a repertoire of strategies to choose from or switch to during learning activities.

How effective is it?

Meta-cognitive and self-regulation approaches have consistently high levels of impact with meta-analyses reporting between seven and nine months additional progress on average. It is usually more effective in small groups so learners can support each other and make their thinking explicit through discussion.

Encouragingly the evidence suggests that teaching meta-cognitive and self-regulation strategies tends to be particularly effective with lower achieving pupils, as well as with older students. Most studies have looked at the impact on English or mathematics, though there is some evidence from other areas such as science, suggesting benefits are likely to be widely applicable.

The potential impact of approaches which encourage learners to plan, monitor and evaluate their learning is very high. However it can be difficult to achieve these gains as this involves pupils in taking greater responsibility for their learning and in developing their understanding of what is involved in being successful. There is no simple strategy or trick for this. It is possible to support pupils' work too much, so that they do not learn to monitor and manage their own learning but come to rely on the prompts and support from the teacher. A useful metaphor is scaffolding in terms of *removing* the support and dismantling the scaffolding to check that learners are taking responsibility to manage their own learning.

How secure is the evidence?

There are a number of systematic reviews and meta-analyses of programmes and approaches which promote thinking about thinking which have consistently found similar levels of impact.

What are the costs?

Costs are relatively low, though many studies report the benefits of professional development and/or outside support, or an inquiry approach for teachers where they actively evaluate strategies as they use them. A course of sustained professional development or collaborative professional inquiry is estimated at £2-3,000 per year (including some release from classroom teaching) or about £100 per pupil.

What do I need to know?

- Teaching approaches which encourage learners to plan, monitor and evaluate their learning have very high potential, but require careful implementation.
- Teach pupils explicit strategies to plan, to monitor and to evaluate their learning, and give them opportunities to use them with support and then independently.
- When using approaches for planning, ask pupils to identify the different ways that they could plan (general strategies) and about best approach for a particular task (specific technique).
- Monitoring involves identifying the key steps they need to be aware of as they go through a task to keep it on track. (Where might this go wrong? What will be the difficult parts?)
- Evaluating can be part of the process of checking so that it feeds into the current task as it nears completion (Can you make it better? Are you sure this is right?). It can also feed forward into future tasks (What have you learned that will change what you do next time?).